IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231

Inventor: **Dr. Thomas Schmidt**	Examiner:
Serial No: **Not yet assigned**	Art Unit:
Filed: **December 14, 2001**	
For: **Sequentially Arranged Streptavidin-Binding Modules as Affinity Tags**	

PRELIMINARY AMENDMENT

The Honorable Commissioner
of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

Please enter the following as a preliminary amendment.

IN THE CLAIMS

The claims have been amended to delete multiple dependencies as follows:

4. (Amended) Isolated peptide according to claim 1, wherein the peptide is capable of cooperatively binding to a single streptavidin tetramer or streptavidin dimer.

5. (Amended) Isolated peptide according to claim 1, wherein at least one individual streptavidin-binding module comprises the sequence –His-Pro-.

6. (Amended) Isolated peptide according to claim 1, wherein at least one individual streptavidin-binding module comprises the sequence –His-Pro-Gln.

7. (Amended) Isolated peptide according to claim 1,wherein the distance between the two individual modules is at least 0 and not greater than 50 amino acids.

8. (Amended) Isolated peptide according to claim 1, wherein each individual module includes at least the sequence -His-Pro-Baa- where Baa is glutamine, asparagine or methionine.

10. (Amended) Isolated peptide according to claim 1, wherein at least one individual module includes at least the sequence -His-Pro-Gln-Phe-.

11. (Amended) Isolated peptide according to claim 1, wherein at least one individual module includes at least the sequence -Oaa-Xaa-His-Pro-Gln-Phe-Yaa-Zaa- where Oaa is Trp, Lys or Arg, Xaa is any amino acid and where either Yaa and Zaa are both Gly or Yaa is Glu and Zaa is Lys or Arg.

12. (Amended) Isolated peptide according to claim 1, wherein at least one individual module includes at least the sequence -Trp-Xaa-His-Pro-Gln-Phe-Yaa-Zaa- where Xaa is any amino acid and where either Yaa and Zaa are both Gly or Yaa is Glu and Zaa is Lys or Arg.

13. (Amended) Isolated peptide according to claim 1, wherein at least one individual module includes at least the sequence -Trp-Ser-His-Pro-Gln-Phe-Glu-Lys-.

14. (Amended) Isolated peptide according to claim 1, which includes the sequence -Trp-Ser-His-Pro-Gln-Phe-Glu-Lys-$(Xaa)_n$-Trp-Ser-His-Pro-Gln-Phe-Glu-Lys- where Xaa is any amino acid and n is either 8 or 12.

15. (Amended) Isolated peptide according to claim 1, which includes the sequence -Trp-Ser-His-Pro-Gln-Phe-Glu-Lys-$(GlyGlyGlySer)_n$-Trp-Ser-His-Pro-Gln-Phe-Glu-Lys- where n is either 2 or 3.

16. (Amended) Fusion protein comprising a peptide according to claim 1 linked to a protein.

18. (Amended) Expression vector comprising a nucleic acid sequence which codes for a peptide according to claim 1 and a restriction cleavage site which adjoins said nucleic acid sequence in 5' or/and 3' direction and which allows the introduction of another nucleic acid sequence coding for a protein to be expressed or a protein part.

23. (Amended) Method according to claim 1 for isolating a protein fused to a peptide according to claim 1 from a sample, which comprises subjecting the sample to a streptavidin or streptavidin mutein affinity chromatography to form a complex between the peptide and streptavidin or/and a streptavidin mutein and eluting the protein by contacting the complex with a streptavidin ligand or/and streptavidin mutein ligand acting as competitor and isolating the protein from the sample.

24. (Amended) Method according to claim 1, wherein the streptavidin ligand used as competitor is an isolated peptide of claim 1, a peptide containing only one streptavidin binding module of the peptide of claim 1, a fusion protein of claims 15, or a peptide or protein comprising one amino acid sequence Trp-X-His-Pro-Gln-Phe-Y-Z where X is any amino acid residue and Y and Z are in each case Gly or where Y is Glu and Z is Arg or Lys.

27. (Amended) Nucleic acid coding for a peptide according to claim 1 or a fusion protein according to claims 16.

28. (Amended) Use of streptavidin or/and a streptavidin mutein as receptor for binding a peptide according to claim 1 or a fusion protein according to claims 16.

29. (Amended) Method for detection of a binding event between a protein and an analyte which is capable of binding to the protein by use of a biosensor, wherein streptavidin or a streptavidin mutein is immobilized on a surface of the biosensor, comprising the steps of

(a) contacting a first sample containing a protein which is linked to a peptide of claim 1 with the biosensor, thereby allowing the formation of a complex between said protein and streptavidin or a streptavidin mutein via the peptide of claim 1,

(b) contacting a second sample which can contain an analyte which is capable of binding to said protein with the biosensor, thereby allowing the formation of a complex between said protein and the analyte,

(c) detecting the binding of the analyte to the protein by use of a signal caused by the formation of the complex between said protein and the analyte.

REMARKS

The requested changes merely remove multiple dependencies.

Respectfully submitted,
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Dated: 14 Dec 2001

By: _____

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VERSIONS WITH MARKING TO SHOW CHANGES MADE

In the Claims

4. (Amended) Isolated peptide according to any of claims 1 to 3, wherein the peptide is capable of cooperatively binding to a single streptavidin tetramer or streptavidin dimer.

5. (Amended) Isolated peptide according to any of claim 1 to 4, wherein at least one individual streptavidin-binding module comprises the sequence –His-Pro-.

6. (Amended) Isolated peptide according to any of claims 1 to 5, wherein at least one individual streptavidin-binding module comprises the sequence –His-Pro-Gln.

7. (Amended) Isolated peptide according to any of claims 1 to 6, wherein the distance between the two individual modules is at least 0 and not greater than 50 amino acids.

8. (Amended) Isolated peptide according to any of claims 1 to 7, wherein each individual module includes at least the sequence -His-Pro-Baa- where Baa is glutamine, asparagine or methionine.

10. (Amended) Isolated peptide according to any of claims 1 to 9, wherein at least one individual module includes at least the sequence -His-Pro-Gln-Phe-.

11. (Amended) Isolated peptide according to any of claims 1 to 10, wherein at least one individual module includes at least the sequence -Oaa-Xaa-His-Pro-Gln-Phe-Yaa-Zaa- where Oaa is Trp, Lys or Arg, Xaa is any amino acid and where either Yaa and Zaa are both Gly or Yaa is Glu and Zaa is Lys or Arg.

12. (Amended) Isolated peptide according to any of claims 1 to 11, wherein at least one individual module includes at least the sequence -Trp-Xaa-His-Pro-Gln-Phe-Yaa-Zaa- where

Xaa is any amino acid and where either Yaa and Zaa are both Gly or Yaa is Glu and Zaa is Lys or Arg.

13. (Amended) Isolated peptide according to any of claims 1 to 12, wherein at least one individual module includes at least the sequence -Trp-Ser-His-Pro-Gln-Phe-Glu-Lys-.

14. (Amended) Isolated peptide according to any of claims 1 to 13, which includes the sequence -Trp-Ser-His-Pro-Gln-Phe-Glu-Lys-$(Xaa)_n$-Trp-Ser-His-Pro-Gln-Phe-Glu-Lys- where Xaa is any amino acid and n is either 8 or 12.

15. (Amended) Isolated peptide according to any of claims 1 to 14, which includes the sequence -Trp-Ser-His-Pro-Gln-Phe-Glu-Lys-$(GlyGlyGlySer)_n$-Trp-Ser-His-Pro-Gln-Phe-Glu-Lys- where n is either 2 or 3.

16. (Amended) Fusion protein comprising a peptide according to any of claims 1 to 15 linked to a protein.

18. (Amended) Expression vector comprising a nucleic acid sequence which codes for a peptide according to any of claims 1 to 15 and a restriction cleavage site which adjoins said nucleic acid sequence in 5' or/and 3' direction and which allows the introduction of another nucleic acid sequence coding for a protein to be expressed or a protein part.

23. (Amended) Method according to claim ~~21~~ for isolating a protein fused to a peptide according to ~~any of~~ claims 1 ~~to 15~~ from a sample, which comprises subjecting the sample to a streptavidin or streptavidin mutein affinity chromatography to form a complex between the peptide and streptavidin or/and a streptavidin mutein and eluting the protein by contacting the complex with a streptavidin ligand or/and streptavidin mutein ligand acting as competitor and isolating the protein from the sample.

24. (Amended) Method according to claim 23, wherein the streptavidin ligand used as competitor is an isolated peptide ~~of any~~ of claims 1 ~~to 15~~, a peptide containing only one streptavidin binding module of the peptide of any of claims 1 ~~to 15~~, a fusion protein of claims 15 ~~or 16~~, or a peptide or protein comprising one amino acid sequence Trp-X-His-Pro-Gln-Phe-Y-Z where X is any amino acid residue and Y and Z are in each case Gly or where Y is Glu and Z is Arg or Lys.

27. (Amended) Nucleic acid coding for a peptide according to ~~any of~~ claims 1 ~~to 15~~ or a fusion protein according to claims 16 ~~and 17~~.

28. (Amended) Use of streptavidin or/and a streptavidin mutein as receptor for binding a peptide according to ~~any of~~ claims 1 ~~to 15~~ or a fusion protein according to claims 16 ~~and 17~~.

29. (Amended) Method for detection of a binding event between a protein and an analyte which is capable of binding to the protein by use of a biosensor, wherein streptavidin or a streptavidin mutein is immobilized on a surface of the biosensor, comprising the steps of

(a) contacting a first sample containing a protein which is linked to a peptide of any of claims 1 to 15 with the biosensor, thereby allowing the formation of a complex between said protein and streptavidin or a streptavidin mutein via the peptide of any of claims 1 to 15,

(b) contacting a second sample which can contain an analyte which is capable of binding to said protein with the biosensor, thereby allowing the formation of a complex between said protein and the analyte,

(c) detecting the binding of the analyte to the protein by use of a signal caused by the formation of the complex between said protein and the analyte.